

SUMMARY & CONCLUSIONS.

B-A.T. Group Research Conference

November 9th - 13th 1970

St. Adele, Quebec

Present:

- H.D. Anderson (part time)
- Sir Charles Ellis
- D. G. Felton
- W.B. Fordyce
- R.M. Gibb
- S.J. Green (Chairman)
- I.W. Hughes
- L.C. Laporte
- A.D. McCormick
- H.F. Rance (part time)
- L.A. Rowell (part time)
- R.A. Sanford
- F. Seehofer
- H. Sottorf
- R.S. Wade
- C. Warren (part time)

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B-A.T. GROUP RESEARCH CONFERENCE

NOVEMBER 9TH - 13TH 1970

ST. ADELE, QUEBEC

1. The Marlow R & D paper was reviewed and discussed. The various postulates raised met with general agreement and it was recognised that certain items would be covered under other points in the agenda.

2. The assumptions underlying tobacco R & D identified in the 1967 Montreal Conference were re-examined, and it was agreed that:-

a) Research can be profitable and that new products may now be expected from research.

The 1967 minute reads "Research can be profitable although we are in an industry where new products generally cannot be attributable directly to research".

b) Nicotine is important, and there is probably a minimum level necessary for consumer acceptance in any given market. The chemical form of nicotine has been shown to affect the rate of absorption by the smoker.

The 1967 minute reads "Nicotine is important and there is probably a minimum level of nicotine to which for many people the habituated effects of smoking are attributable. The form of nicotine probably affects the rate of absorption by the smoker".

c) Government involvement with the industry continues to increase.

The 1967 minute reads "Government involvement in the tobacco industry will become greater in the future".

d) The smoking and health problem is at least partially amenable to a research solution.

The 1967 minute reads "The smoking and health problem is amenable to a research solution. This is a significant change in thinking and is a direct result of research".

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- e) It is now accepted that an R & D contribution to product characteristics is important.

The 1967 minute reads "Product characteristics are important in maintaining sales and for improving the market".

- f) It was accepted that, without inhalation, no association between smoking and respiratory disease could reasonably be alledge.

In 1967 the corresponding statement was not agreed.

3. The general objectives of R & D were agreed to be:-

a) to contribute to the continuation of the industry and to the profitability of the company. This insurance aspect of research remains important.

b) To enhance the technological base of the company, and specifically to create a framework for product design.

c) To provide a scientific advisory service in its widest aspects. In order to do this in any company it is necessary to maintain an appropriate level of research work.

d) To provide a contribution to the strategic planning and development of the company and to do so if necessary beyond its tobacco interests.

4. a) The main function of R & D in an operating company must be to serve the immediate interests of that particular company.

b) In the case of B-A.T. (UK), the main function of R & D is to serve the Group and to assist, advise and encourage the R & D function in any operating company.

5. It was emphasised that the new product development facility at Southampton will not detract from the total Group research effort but will in fact complement it.

6. Two papers on Research Planning were discussed. The expansion of Research Planning was seen as potentially valuable, and a number of

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7. The application of technological forecasting was discussed, with special reference to the techniques of Delphi and morphological analysis.
8. The increasing complexity of product development will require a re-appraisal of the various functions involved, such as Leaf Blending, Analytical, Research & Development, etc., and better integration will be necessary.
9. No simple formula exists to decide on R & D expenditure but this should at least match that of the competition.
10. It was recognised that R & D could and should provide a source of recruitment for other positions within the company.
11. It was agreed that, if and when total cigarette consumption declined, great opportunities for supplying the demands of other socially acceptable habits could follow. Discussion followed on those opportunities which might arise. Amongst those discussed were a) chewing products, and b) wet snuff. It was felt that this whole area, much of which is already in the tobacco industry, should be examined more thoroughly. Particular attention should be given to buccal administration of nicotine and other physiologically active ingredients. At the same time, it was re-affirmed that we would not contemplate the incorporation of nicotine in edible products.
12. The current position on artificial smoking materials (SM) was reviewed. In addition to those already familiar manufacturers, ANCEL, IDL and Courtaulds, it was stated that BASF are known to be interested and probably involved with Reemtsma.

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14. The subject of composition disclosure, by AMCEL, was considered.
The formal agreement proposed to B-A.T. for this purpose by AMCEL is complex, and in view of this, before any associated company required disclosure of composition, it would be helpful if Millbank were informed.
15. The group policy on the introduction of this type of material was noted; i.e., that we should be technically ready to move quickly in this area should it be decided to do so and it was re-affirmed that no non-tobacco material would be used without a demonstrable advantage on health grounds over tobacco or reconstituted tobacco.
16. It now appears likely that AMCEL will build a full-scale plant, and the news of their interest in this field will probably break before the end of 1970.
17. The latest CYTREL variant is now under test at H.C.I., and also by Wynder. In both cases, results are expected to be published in 1972 (late) or early 1973.
18. The addition of nicotine to SH was considered, and it was recommended that nicotine per se, should not be used inside any tobacco factory. However, high nicotine content tobacco extract might be added. So long as SH remains a blend constituent, it would not be considered desirable for the supplier to include nicotine in the formulation. Nevertheless, for purposes of laboratory experimentation under suitable controls, nicotine-containing materials offered by suppliers may be used. There are indications (from laboratory workers who have been in contact with it) that the side-stream smoke of CYTREL is noticeably irritant and unpleasant.

The unusual smoke particle size distribution noted in Southampton, on smoking CYTREL, is potentially very important.
19. The Canadian situation with regard to reconstitution was outlined. The current biological testing programme information is not sufficiently far advanced to draw a firm conclusion on the relative biological activity of PCL and PRT. Nevertheless, it is considered unlikely that PRT will prove to be more active biologically than PCL.

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20. B-A.T. will investigate the provision, possibly with Wiggins-Teape, of a development/production unit for PRT as part of a much wider study aimed at the provision of modified tobacco based smoking materials. This is based on the view that such materials will be used increasingly, beyond waste utilization requirements, in future smoking products.
21. It was recognised that the policy of excluding additives from PCL could now reasonably be modified to allow minor proportions of binders approved by the AGP.
22. It was noted with interest that German regulations currently permit up to 20% sheet in the blend, and that the sheet itself must contain in excess of 75% tobacco.
23. Before reconstitution requires the development of high nicotine growths, we should, through research, appreciate the significance of any other alkaloids.
24. It was agreed that Canada could, with benefit to the Group explore growing tobaccos specifically developed for use in reconstitution, with particular reference to nicotine content.
25. Chemical and physical leaf properties are often identified by leaf buyers with a useful degree of accuracy, and Canada's proposed investigation of the approach adopted by ITG was welcomed.
26. The question of research on leaf tobacco should be re-examined to see if opportunities for useful additional work do exist.
27. The present status of the ALT project in Australia was reviewed, and its application to a wider range of grades mentioned. Consumer reaction was mixed, and obviously blend-dependent.
28. R & D E reported that tests on the samples of freeze dried tobacco available have so far shown that in cigarettes:
 - a) there is a reduction in the ratio of benzpyrene to TPIi.
 - b) there is a change in smoke taste detectable by WOODROSE at 10 - 25% incorporation; lower "impact" and higher "irritation" were indicated.
 - c) there is also some indication of hot collapse, and the aroma changes are judged to be undesirable.

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d) with 25% incorporation, TPM delivery would be lowered appreciably, but the effect on the ratio of benzpyrene to TPM would not be important.

29. The position on the Reynolds puffed tobacco process was reported. The expansion achieved is about 90% with flue-cured lamina, and 65% with burley. Hot collapse is not noticeable at 10% incorporation. The position with respect to fluorine residues is still under investigation. Whether the Group has all the FPI ability it needs is not clear as there is a conflict between FPI utilisation and the rate of combustion. The use of burn retardants can be envisaged, and the whole area is one where careful investigation of all aspects should be continued.
30. With the development of lighter weight cigarettes it would be desirable to re-establish methods for measuring hot-collapse, and considering methods to remedy this. R & D E Southampton will be asked to undertake this initially.
31. The patent position on paper filters is now confused. This area will not be free of patents in the USA in 1971 as previously expected. An attempt will be made to clarify the position in other countries.
32. Considerable progress has been made on water filters using the ice-ball technique. Development work to production level will continue at Southampton. This offers an important contribution to selective filtration, particularly for vapour phase components.
33. It was noted that while Vantage is showing some success, Pinnacle with a similar filter (but reversed) has been withdrawn from the market.
- The Vantage (SCS) filter does not infringe the single-pass patent in the U.S.A., but it may do so elsewhere. Such a possibility should be examined by individual companies in countries such as Canada and the UK. Attention was drawn to the "hourglass" filter which is similar but cheaper than the SCS filter.

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34. The Checkerboard development was described up to the test market position. As far as can be judged at present, the smoke chemistry is similar to that obtained by other ventilation techniques, but this particular approach is considered to be an attractive development and one which may be taken further by modification of the filter.
35. Examination of competition cigarettes on a constituent (e.g. extractable nicotine) per puff basis may enable brands to be grouped in such a way as to suggest gaps in the market not revealed in a simple comparison on a "per cigarette" basis. This might be a useful way to identify marketing opportunities.
36. The Canadian exercise in analysing competition leaf buying laid the basis for matching a competition blend. Intrinsically there is little new in this approach and the Canadian example was simplified because of the one product position of the competitor. But it is considered worthwhile examining the possibility of handling more complex situations using advanced computer techniques.
37. It was reported that, when the WOODROSE procedure was applied to Vantage and Winston, it gave similar profiles despite differences in filtration efficiency, TPM, and other smoke components. This may suggest that Reynolds are using a technique similar to WOODROSE and aiming at a common pattern in their products.
38. The problem of assessing commercial brands of cigarettes could perhaps be overcome by employing the highly developed senses of the blind. This is being considered by the Canadian company.

Another approach used in Australia and in Canada, lies in masking the brands under test by over-tipping on the Manuela.
39. R. & D.E. will be requested to draw up for circulation a draft list of all relevant features for which new products should be checked, regardless of the primary aim of the particular development. The list may include, for example, puff-by-puff deliveries of various smoke constituents, spotting, and so on.
40. Southampton are investigating oval cigarettes.

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- 8 -
41. There is an important problem in improving the flavor characteristics of low TPM cigarettes. This can be approached in two ways; by cigarette design factors (e.g., ventilation and tobacco distribution), and by flavour factors. These flavour factors can be directly affected by the blend or by added flavourants. The contribution to be expected from R & D E Southampton, at least for a year or so, is limited largely to design factors. It was recommended that other laboratories should with some urgency investigate particularly the leaf and added flavourant aspects. In addition to attempts to provide the traditional flavour of higher TPM products, entirely new flavours should be developed both by leaf blend changes and by the use of added flavourants.
 42. The reduction in Germany of TPM yields in the last eight years has more than compensated for the rise in per capita consumption of cigarettes.
 43. A general discussion was held on so-called tar diets. B-A.T. policy is that in those countries where league tables are proposed or published, they should be neither opposed nor supported. The industry should however press for the sensible classification of different types of smoking article, for example, small cigars. At present the effect of cigarette design factors on smoking behaviour is not known; this will be explored at Southampton.
 44. The problem of small cigars in Canada was discussed with reference to the likelihood of TPM publications. This was considered to be a problem for the Canadian industry.
 45. Vapour phase measurements may well be called for in the U.S.A. in 1971. The constituents to be measured will probably be carbon monoxide, hydrogen cyanide, and acrolein. The Horn report is expected in 1970.
 46. Responses to a vapour phase situation include the water filter, Duolite and charcoal filters, and possibly zinc oxide or zinc acetate filters. Combinations of these and other filters, higher porosity papers, and ventilation of both or either of the filter and the cigarette are other possibilities.

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47. The H.Z. odor/taint problem was discussed at length, and samples of tainted cigarettes circulated. Comparable experience was recorded by several present: In Germany a similar taint had emanated from the foil-tissue. It was suggested that the odor was characteristic of mould on board.

The meeting further agreed that odour tests on incoming materials should be recommended to the group as a whole. Details of the German and SCL tests will be sent to R & D Millbank for circulation.

48. There was a general review of all the relevant work in the field of smoking and health.

49. In view of some evidence that Schweitzer material may not necessarily conform precisely to the desired formulation, the product will be rigorously examined to ensure conformity with specification before incorporation in Janus Programme.

Schweitzer sheet will be made, Janus Experiment B10 will be performed on the new basis, and Experiment B6/7 will be terminated at 120 weeks.

The merits of a synthetic control in the Janus programme will be considered further with a view to maintaining a continuing point of reference.

50. After a full discussion of all aspects of the procedures involved the Conference agreed that it should keep abreast of all developments in the field of inhalation studies. It is not intended to enter this field at present, but as and when suitable techniques become available experimental work will begin immediately.

51. The possibility that nicotine may be implicated in the aetiology of cardiovascular disease was discussed; close attention will be paid to developments at Harrogate and Huntingdon.

52. It was agreed that insufficient work is being done on those benefits perceived by the consumer, and that psychological and pharmacological studies should be initiated, both at industry and group level, to identify the consumers' needs.

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53. It was agreed that the possible involvement of inorganic fibres in lung disease should be kept under constant scrutiny.
54. The importance of carbon monoxide was re-affirmed, and it was suggested that carbon monoxide should be monitored on a regular basis. Efforts to reduce carbon monoxide both by design and by filtration, should continue, although success by the latter method seems unlikely.
55. Work should continue on the residues from Phostoxin treatment and the results of this work published if they appear to be sufficiently important.
56. A recommendation is to be made to Leaf Department (Millbank) that they should establish an appropriate working party including representatives from R & D to look into the efficacy of disinfestation procedures, with emphasis on their costs and safety.
57. R & D(Millbank) will list approved pesticides, and pesticide residue determinations will be performed in the most appropriate Group laboratory.
58. It was reported from Germany that the law was having a good effect in reducing pesticide residues, but infestation problems were increasing as a result.
 - . Equal emphasis and importance should be given on the one hand towards directing R & D resources to satisfying those needs perceived by the smoker, and on the other towards providing cigarettes of lower biological activity.
60. The study of smoking behavioural patterns could lead to the identification of market segments, for which cigarettes could well be designed. A possible approach would be the use of panels who conformed to that particular pattern.
61. The Conference welcomed the Market Research (Millbank) paper, and several of the points made will be discussed and developed further in Millbank.

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62. The improvement in Group procedures with respect to patents should be continued. In addition to the circulation of information from Millbank, operating company R & D departments should make themselves aware of patents granted and should scrutinise group patents to make sure that opportunities are not overlooked.
63. The recent arrangement to circularise R & D departments with information fed into Millbank on approaches from outside inventors was welcomed, and some improvements suggested.
64. The use of the U.K. Provisional Patent system, and the rapid publication of patents in some countries appears on a number of occasions to have alerted competitors and to have resulted in the weakening of the B-A.T. patent structure. This will be dealt with by careful consideration at the Provisional stage. In future, all patentable inventions should be considered, with other potential licensors, in addition to tobacco manufacturers, in mind. It is likely that the SCS filter was developed after the issue of the single-pass patent.
65. It would be desirable to circulate through R & D departments actual samples of innovations in packaging.
66. In addition to information conveyed through normal channels, it would be helpful if changes in R & D organisation were advised directly to the main R & D departments.
67. It is undesirable for the results of partially completed projects to be handed to visitors to laboratories. R & D product as a general rule should be conveyed only in formal reports through the appropriate channels.
68. As far as visitors from outside the B-A.T. Group are concerned some clarification is required as to the release of detailed information on certain topics.
69. When visits are made from one laboratory in the group to another, R & D, (Millbank) should be informed.

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70. It was agreed that this series of conferences had been of great value the the conference had enlarged and an attempt was being made to cover too wide a span. It was decided that the next meeting should be restricted to the laboratory managers and would be in Germany, about February or March. The host company would provide the Chairman and the meetings would be attended by the Manager - Research Planning (Dr. Fordyce). The object of the meeting would be to plan in more detail the implementation of the approved laboratory programmes in the light of Group policy and recommendations arising from Group R & D conferences. It is envisaged that less frequently there will be further Group conferences concerned entirely with Group R & D policy strategy.

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